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ABSTRACT

The development and implementation of a course to improve instructional skills of dental faculty members is described. Faculty involved in the pilot test of the course were interviewed one year later in regard to the impact of the course upon their teaching practices and educational philosophy. Responses were analyzed in relation to the Concerns Based Adoption Model (CBAM). Participants were found to be at a relatively high "stage of concern" on the CBAM scale, but actual utilization of techniques presented in the inservice course was relatively low. Recommendations for revising the course are suggested. (Authors/JD)

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Improving Instructional Skills of Health Science Educators

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Developing Teaching Skills of Health Science Educators

Introduction

Recent surveys of medical (Jason et. al., 1977) and dental (Saroff, 1975) faculty indicate a strong interest in the improvement of individual teaching skills. A number of factors probably contribute to this faculty interest:

1. Very few faculty have had formal training in instructional methods. (Page, 1975; Saroff, 1975; Cantrell, 1973)

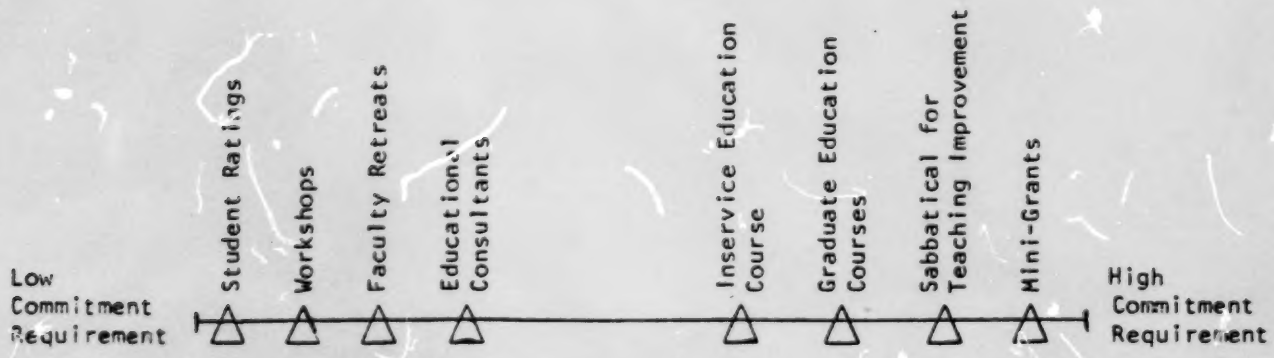
2. Student dissatisfaction with poor teaching. (Morstain and Gaff, 1977; Walker, 1971)

3. Economic belt-tightening in higher education resulting in increased teaching responsibilities. (Gaff, 1975; Berquist and Phillips, 1975)

Colleges and universities have responded to the need for improved teaching in a number of ways: (1) workshops on educational topics, (2) faculty retreats, (3) educational consultation to individual faculty and departments, (4) mini-grants for teaching improvement projects, and (5) the establishment of learning resource centers. The wide variety of teaching improvement efforts can be arranged along a continuum based upon degree of individual faculty involvement required by each method. Figure 1 is a graphic presentation of this continuum.

Figure 1

Faculty Involvement Required by Various Teaching Improvement Efforts



In viewing Figure 1, notice that collecting student ratings or attending a workshop does not require a major investment of faculty time or energy. On the other hand, taking graduate courses in educational methods or undertaking a teaching improvement project supported by a mini-grant requires considerable individual commitment.

An inservice course on instructional skills is a "high commitment" method of improving teaching which has not received much attention in the literature. This report describes the development and initial implementation of an inservice course on instructional skills for health science educators. Plans for evaluating the long-term impact of the course upon faculty teaching skills are discussed and some preliminary data are presented.

Development of the Course

The University of Texas Health Science Center at San Antonio Dental School was opened in 1970 with 16 students per class and has expanded to 150 per class. In 1975, the Dean of the Dental School appointed a Coordinator of Faculty Development to address three major areas of concern: 1) professional growth of faculty in their specialty areas; 2) professional growth of faculty as dental educators; and 3) personal growth of faculty. Consequently, during early 1976, the coordinator and the instructional development staff submitted an HEW special projects grant proposal to develop and implement an instructional skills training program for dental faculty. The grant was funded for a two year period.

Shortly after receiving the grant, planning began to facilitate eventual adoption of the program by faculty. The first step was to ask the dean to appoint a faculty advisory committee to assist the Coordinator of Faculty Development. This committee was composed of eight dental and basic science faculty. The second step was to ascertain the perceived needs of the faculty. Working with the advisory committee, the instructional development staff interviewed 42 faculty members (33% of the total faculty) to provide data for determining the importance of various instruction-related topic areas.

After studying the needs assessment results and consulting with the instructional development staff, the advisory committee identified eight major areas of need which would eventually become instructional modules within the course. The eight areas were: 1) The Teaching Learning Process; 2) Small Group Teaching; 3) One-on-One Clinical Teaching; 4) Lecturing Techniques for Teaching; 5) Assessing Student Achievement; 6) Selecting Media and Producing Instructional Materials; 7) Instructional Development Process; and 8) The Curriculum Development Process.

Eight module development teams comprised of two or three dental faculty and two instructional development staff members were formed. An instructional development staff member served as team leader and was principally responsible for writing the module. The module development teams developed specific learning objectives then reviewed available instructional materials which might assist dental faculty in achieving the objectives. While many instructional materials were found suitable for adoption or adaptation, the majority of the material had to be developed by the module teams.

During May and June 1977, nine clinical dental faculty participated in a pilot test of the training modules. The participants spent approximately 100 hours working through the modules. The primary learning activities were self-instructional readings and videotapes. Each module included two or three seminars which were designed to promote discussions of how the concepts presented might be applied. The Lecture, Small Group Teaching, and One-on-One Clinical Teaching modules culminated in micro-teaching exercises. The eight modules were field trial tested with nine dental and dental auxiliary faculty participants during the 1977 fall term and ten more participated during the 1978 spring term. Four faculty took the course during the summer of 1978 and fourteen faculty plus ten Doctor of Pharmacy graduate students participated during the 1978 fall term. In the 1979 spring term, eight faculty and eleven Doctor of Pharmacy students are enrolled.

Strategies for Implementation

As noted earlier, an inservice education course requires a considerable investment of faculty time and energy when compared to other methods of faculty development such as workshops or faculty retreats. This "intensive" approach was chosen because of repeated experiences with health science faculty who have been superficially exposed to various educational issues, but fail to adopt improved instructional techniques. By providing an extended learning experience with an emphasis on practical applications, we hoped to facilitate actual adoption of improved instructional techniques by individual faculty.

In developing these instructional modules, a conscious effort was made on three levels to facilitate eventual acceptance by the faculty. At the first level, the needs assessment interviews provided data for focusing the training program content and at the same time served to inform a cross section of the faculty about the project. On the second level, the project advisory committee served several functions related to eventual use of the modules: (a) the faculty would perceive

the modules to have been developed by the school rather than by the Division of Instructional Development and (b) committee members would assist in reviewing the results of the needs assessment and planning the general content to be included in the modules. The third level of planning for eventual use involved the faculty members on the module development teams. A member of the advisory committee was assigned to each module plus one or two "instruction-oriented" faculty. It was anticipated that a sense of ownership would develop and that these faculty would serve a "promotional" role with their colleagues when the modules were ready for general use. Thus to summarize, three avenues were utilized to facilitate eventual acceptance: (1) personally informing a cross section of the faculty about the project (i.e., the needs assessment interviews), (2) enlisting the aid of key opinion setters to promote a sense of faculty ownership (i.e., the project advisory committee), (3) faculty participation in the actual development activities (module development teams). The excellent enrollment response cited earlier indicates that faculty can be attracted to this type of course despite the relatively high time commitment required.

Evaluation Plan

Systematic evaluations of faculty development programs are difficult to find. Hoyt and Howard (1977) reviewed the literature and concluded:

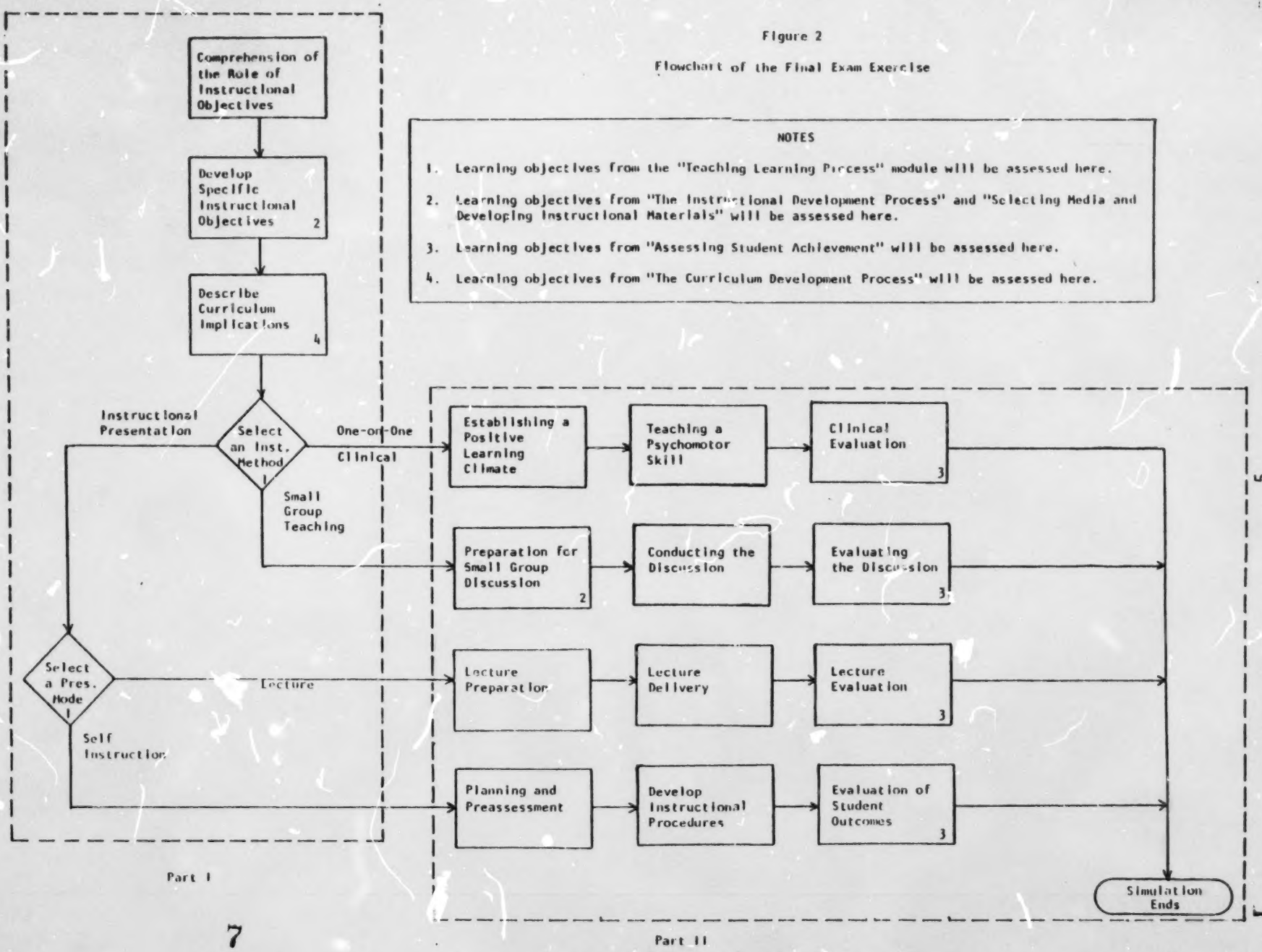
> "In summary, the literature is extremely sparse and the studies reported are uncommonly simplistic. Apparently, participants in faculty development programs have generally expressed satisfaction with them, a finding of doubtful meaning." (p. 2)

The evaluation plan for this course includes two major components: a domain-referenced final exam exercise and longitudinal analysis of participant Stages of Concern (SoC) and Levels of Use (LoU) based upon the Concerns Based Adoption Model (Hall, 1975). The final exam exercise was planned from the inception of the course; however, the longitudinal analysis of SoC and LoU was conceived after reviewing the conclusions from a one year follow-up interview with the pilot test participants.

The final exam exercise is outlined by the flow chart in Figure 2. The exercise consists of two major parts which are enclosed by dashed lines in Figure 2. A total of 58 learning objectives are assessed by the complete package; however, a given participant will be assessed only on a subset of objectives depending upon the instructional decisions made enroute to the finish. All participants complete Part I (11

Figure 2

Flowchart of the Final Exam Exercise



NOTES

1. Learning objectives from the "Teaching Learning Process" module will be assessed here.
2. Learning objectives from "The Instructional Development Process" and "Selecting Media and Developing Instructional Materials" will be assessed here.
3. Learning objectives from "Assessing Student Achievement" will be assessed here.
4. Learning objectives from "The Curriculum Development Process" will be assessed here.

objectives assessed); however, at the "diamonds" in Figure 2, each participant makes decisions based upon personal needs and interests. The exercise is designed to take advantage of the concept of item sampling (Popham, 1975). Performance data are analyzed primarily to yield measures of program effectiveness (e.g., achievement levels across all participants who choose to develop and present a lecture) with a secondary emphasis upon assessing individual achievement.

Each task in the final exam exercise is scored on a 4 point scale (1= unsatisfactory, 2= marginal, 3= satisfactory, 4= outstanding). Table I presents the mean scores and sample sizes from a pilot test administration in December, 1978.

Table I

Exam Mean Scores

Part I	Part II			
Introduction	One-on-One Clinical	Small Group	Lecture	Self Instruction
3.18 n=9	2.82 n=1	3.21 n=1	3.00 n=6	--- n=0

Notice that 6 participants chose the lecture method while no one chose self instruction. One participant failed to complete Part II. Due to the small sample size, the data have been used only to refine the exam tasks. Future administrations should yield performance data to assess participant achievement levels on each of the 58 objectives. Modifications in the eight instructional modules can then be made.

The second component in the evaluation plan is longitudinal analysis of participants' Stages of Concern and Levels of Use. (Hall, 1975) These two constructs are used by the Concerns Based Adoption Model (CBAM) to describe the process by which a faculty member adopts an educational innovation such as improved lecture method.

Stages of Concern are focused on the individual faculty member's needs, motivations, problems, and requests as he/she becomes an expert in using a given innovation. The seven Stages of Concern are outlined in Figure 3.

Figure 3. Stages of Concern About the Innovation

0 AWARENESS: Little concern about or involvement with the innovation is indicated.

1 INFORMATION: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about herself/himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

2 PERSONAL: Individual is uncertain about the demands of the innovation, her/his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3 MANAGEMENT: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

4 CONSEQUENCE: Attention focuses on impact of the innovation on students in her/his immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

5 COLLABORATION: The focus is on coordination and cooperation with others regarding use of the innovation.

6 REFOCUSING: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

In addition to Stages of Concern, CBAM also defines eight Levels of Use of an Innovation. These levels are defined in Figure 4.

Figure 4

Levels of Use of an Innovation

0 NON-USE: State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.

1 ORIENTATION: State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demand upon user and user system.

2 PREPARATION: State in which the user is preparing for first use of the innovation.

3 MECHANICAL USE: State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.

4A ROUTINE: Use of the innovation is stablized. Few if any changes are being madé in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.

4B REFINEMENT: State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.

5 INTEGRATION: State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.

6 RENEWAL: State in which the user reevaluates the quality of use of the innovation, seeks major modifications of alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

The Stages of Concern (SoC) and Levels of Use (LoU) have a parallel structure in that a faculty member starts with an initial introduction to the innovation (SoC and LoU 0-1), becomes involved with personal implications (SoC and LoU 2-3)

and finally progresses to a point of focusing on the educational impact of the innovation (SoC and LoU 4-6). In an ideal innovation adoption situation, individual faculty will simultaneously progress through the respective Stages of Concern and Levels of Use. That is, they will not be expected to utilize the innovation at an LoU which is very different from their SoC (e.g., The new faculty member who is handed a clinical grading form and sent to the clinic to evaluate students with little or no orientation).

The CBAM was chosen to assess the longitudinal impact of the Teaching Skills Course based upon an analysis of follow-up interviews with the nine original pilot test faculty. One year after completing the course, the pilot test participants were interviewed by an Instructional Development staff member who had not participated in the original planning and pilot testing of the modules. Four major conclusions were supported by the interview responses:

1. The seminars were the most popular aspect of the course. (Faculty enjoyed discussing education-related topics with their colleagues.)

2. The reading assignments were excessively long. Practical applications such as microteaching were viewed more positively than the readings.

3. Participants were pleasantly surprised that an educational course offered concepts which were more subtle than "common sense".

4. Very few participants could identify specific changes in their instructional practices based upon what they had learned.

The interview comments indicated a positive attitude toward the importance of improving teaching; however, a positive attitude is a necessary prerequisite just to complete a course which requires 100 hours from an already busy schedule. The conclusions above (particularly item 4) did not meet our "great expectations" for course participants. The original course objectives anticipated that participants would not only become aware of basic instructional techniques, but would also be able to incorporate them into their teaching.

To encourage more specific changes in instructional practices, we have begun to stress actual educational development projects as part of the course. By developing a concrete product (e.g., a self instructional package) during the course, we hope that participants will move to a Stage of Concern 3 or 4 (Management/Consequence) by the end of the course and thereby be more inclined to actually adopt improved instructional methods into their daily teaching. Levels of Use interviews (Loucks et. al., 1975) will be used one year after completion of the course to assess the long term impact of the course upon the instructional practices of participants.

Conclusions

In developing an eight module course to teach instructional skills to dental faculty, three strategies to involve faculty have resulted in high levels of course enrollment despite a 100 hour time requirement. The evaluation plan for the course focuses on assessing achievement levels at the time of course completion (final exam exercise) and a longitudinal analysis of participant Stages of Concern and Levels of Use (CBAM). The CBAM component of the evaluation plan was adopted after pilot test participants reported few changes in their instructional practices one year after completing the course. The course has been slightly modified to stress actual educational development projects in hopes of facilitating adoption of improved instructional practices. The CBAM Stages of Concern and Levels of Use will be used to assess the long term impact of the course in terms of using the instructional innovations.

Referring back to Figure 1, we are of the opinion that in choosing a method for improving instructor skills, the inservice course approach described here requires the minimum level of faculty commitment from which one can hope to move faculty to a point where successful adoption of improved teaching techniques is likely. This eight module course will require furtner refinements before we are willing to conclude that significant numbers of faculty are adopting improved teaching techniques as a result of participating in the course.

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